OBJECTIVES: Chronic plantar fasciitis (CPF), the most common cause of plantar heel pain, lacks an optimal treatment standard. The electromagnetic Epos® Ultra (EPOS) and the electrohydraulic OssaTron® (OSSA) are the only two FDA approved extracorporeal shock wave therapy (ESWT) devices for CPF. This assessment will examine the net health outcomes obtained when using either of these devices in the treatment of CPF in patients who failed to achieve satisfactory improvement with initial conservative treatment. **METHODS:** Medline® MeSH heading searches of published peer-reviewed clinical literature identified all relevant studies that analyzed ESWT for the treatment of CPF dating to 1996. Additionally, conferences of professional organizations were searched for appropriate posters and abstracts. Outcomes measures focused on the ability of the comparators to reduce pain and the occurrence of adverse events. **RESULTS:** Treatment with EPOS demonstrated pain relief as evidenced by visual analog scale (VAS) score improvement from baseline and compared to control. When compared to control group, VAS score improvement at 3 months post treatment with ESWT was significantly greater ($p = 0.0149$). When compared to baseline VAS scores, the improvement seen at 3, 6, and 12 months post treatment was also significantly greater ($p < 0.05$). Adverse events in patients using EPOS were limited to pain at the time of application, which resolved after the treatment was completed. Treatment with OSSA resulted in greater pain relief than placebo, revealing an improved VAS score of approximately 1.0 to 2.5 points. Minor adverse events appearing in the area where the shock wave was applied were resolved within six weeks. Studies also revealed that ESWT as a whole improved patients' mobility scores by 38–51% ($p = 0.001$) compared to baseline. **CONCLUSIONS:** The results of this assessment demonstrate that both EPOS and OSSA are safe and effective treatments for CPF patients who did not achieve adequate results with conservative treatment.

MUSCULAR-SKELETAL DISORDERS—Cost Studies

PMS2

THE COST-EFFECTIVENESS OF EXTRACORPOREAL SHOCK WAVE THERAPY FOR THE TREATMENT OF CHRONIC PLANTAR FASCIITIS

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OBJECTIVE: Plantar fasciitis (PF), the most common cause of plantar heel pain, affects middle-aged individuals and comprises 15% of overall foot-related complaints. Initial treatments for PF include non-steroidal anti-inflammatory drugs (NSAIDs), custom foot orthotics and/or corticosteroid injections into the heel. When symptoms persist beyond six months it is classified as chronic PF (CPF); two options for treatment, surgical intervention and extracorporeal shock wave therapy (ESWT), exist. This analysis will determine the cost-effectiveness of ESWT in relation to surgery for the treatment of CPF. **METHODS:** A Markov model was constructed based on established management practices for the treatment of CPF, simulating the distribution of patients into one of five health and treatment states. Cost and probability values used to populate the model were derived from appropriate Medicare reimbursement values, retail and average wholesale prices and published peer-reviewed clinical studies. Cost and effectiveness values were accumulated monthly over a 12 month period, yielding incremental cost-effectiveness ratios (ICERs) in dollars per quality-adjusted life year ($/QALY). **RESULTS:** Model analysis reveals that surgery has a lower overall cost of treatment ($1912 v. $2862 respectively) and a higher overall effectiveness in comparison to ESWT (0.6742 v. 0.5750 QALY respectively). Surgery dominates ESWT due to its lower overall cost of treatment and higher effectiveness value, resulting in a lower ICER as compared to ESWT ($2836/QALY v. $4977/QALY respectively). **CONCLUSION:** Based on the results of this analysis, surgery is a more cost-effective option than ESWT for the treatment of chronic plantar fasciitis; however, the ICER of each of these methods fall below the commonly accepted willingness-to-pay threshold of $50,000/QALY commonly used by payers for the adoption of new technology. Therefore when surgery has failed, or is not an option, ESWT remains a viable and cost-effective alternative.

MUSCULAR-SKELETAL DISORDERS—Health Care Use & Policy Studies

PMS3

COMPARISON OF HOSPITAL COST WITH DRG REIMBURSEMENT RATE IN PATIENTS WITH PERITROCHANTERIC FRACTURE ACCORDING TO SURGICAL METHODS

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OBJECTIVES: The aim of the study is to compare the real hospital cost with DRG reimbursement rate according to surgical methods in patients with peritrochanteric fractures. **METHODS:** Reimbursement data of the Hungarian Diagnosis Related Groups derive from the financial database of the National Health Insurance Fund Administration. The real hospital costs data were collected at the Traumatology Center of the University of Pécs in 2003. We calculated the following cost elements: salaries of the staff, implants, drugs, bandage, hotel (accommodation) costs. The salaries and accommodation costs were calculeted for one day from the administrative records of the University. Four different surgical methods were included: Gamma nailing and Dinamic Hip Screw (DHS) providing early weight bearing; Ender nailing and fix angled plate (FAP) osteosynthesis providing gradual partial weigh bearing. The average Hungarian Forint (HUF) vale of one DRG cost-weigh was 100,000 HUF. The exchanga rate: 1 USD = 230 HUF. **RESULTS:** The average DRG cost-weights: 2.87 for DHS, Ender nailing and FAP osteosynthesis, and 4.47 for Gamma nailing. The average accommodation cost was 13,276 HUF/patient/day. The average cost of wages: 19,985 HUF/patient/day. Drug cost: 404 HUF/day. Implants: FAP: 21,300 HUF; Ender nail: 3780 HUF; DHS: 33,400 HUF; Gamma nail: 55,400 HUF. The number of average length of stay was: Gamma nailing and DHS: 8 days, Ender nailing 10 days, FAP osteosynthesis 13 days. Comparing the DRG reimbursement with the calculated hospital cost we received the further balance: Gamma nailing: +122,280 HUF; DHS: –15,720 HUF; Ender nailing: –45,610 HUF; FAP osteosynthesis –171,685 HUF. **CONCLUSIONS:** We can conclude that DRG reimbursement exceed the real hospital costs in Gamma nailing. The hospital costs of DHS, Ender nailing and FAP osteosynthesis are higher than the DRG reimbursement therefore in these cases the hospital produces a deficite during the treatment of patients.

OSTEOPOROSIS—Clinical Outcomes Studies

POS1

ONE- AND TWO-YEAR PERSISTENT USE OF BISPHOSPHONATES REDUCES THE RISK OF OSTEOPOROTIC FRACTURES IN DAILY PRACTICE

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OBJECTIVES: This study aimed to investigate the effect of long term persistent bisphosphonate usage on the risk for hospitalization due to osteoporotic fractures. **METHODS:** The PHARMO database, which includes linked drug-dispensing records and hospital discharge records for more than two million subjects in defined areas in the Netherlands, was used to identify new female users of alendronate, etidronate or risedronate >50 years in the period January 1996–June 2003. Persistence with bisphosphonate treatment was determined using the method of Catalan. Within the cohort a matched case control study was performed. Cases were selected on the basis of a first hospitalization for an osteoporotic fracture (index date). Controls were matched 10 : 1 to cases on year of inclusion in the cohort and were assigned a random index date. The association with risk for fractures was assessed for persistent bisphosphonate use for one and two years prior to the index date. Analyses were adjusted for differences in patient characteristics such as age, previous hospitalization for fractures, co-morbidity and co-medication. **RESULTS:** There were 14,760 new female users of bisphosphonates were identified of which 541 women had a hospitalization for osteoporotic fracture during follow-up. One-year persistence rates improved with less frequent dosing (e.g. 33% with alendronate daily to 48% with alendronate weekly, an increase of 15%). Similar results were obtained with risedronate daily and weekly. One year persistent use of bisphosphonates resulted in a significant 35% lower fracture rate (OR 0.74; 95%CI 0.57–0.95) whereas two year persistent use resulted in a 47% lower rate (OR 0.68; 95%CI 0.47–0.96). **CONCLUSIONS:** These results emphasize the importance of persistent bisphosphonate usage to obtain the maximal protective effect of treatment. Persistence with bisphosphonates is higher with less frequent dosing regimens but is still suboptimal. This study has demonstrated that improving persistence results in reduced hospitalization for osteoporotic fractures.

POS2

THE EFFECT OF RISK FACTORS ON MORTALITY AFTER PRIMARY TREATMENT OF FEMORAL NECK FRACTURE AT DIFFERENT TIME PERIODS IN HUNGARY

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OBJECTIVES: The aim of the study is to analyze the lethality after femur neck fractures at different time. We analyze the chance of lethality from the time of primary treatment of femoral neck fracture at different time periods according to age-group, sex and most frequently used surgical techniques. **METHODS:** Data derive from the database of the National Health Insurance Fund Administration and based on the ICD-10 S7200 code. The bases of the evaluation are patients over 65 with femoral neck fracture identified with Social Security Identification Number (TAJ) discharged from inpatient care institutions after primary treatment. The following time periods were included into the analysis: 0–30 days, 31–90 days, 91–180 days, 181–270 days, 271–360 days. The patients with polytrauma were excluded from the study. Regarding surgical methods, the most frequently used screw fixation and arthroplasty were evaluated. Statistical analysis means logistic regression and reference values were: males, universities and arthroplasty. **RESULTS:** Altogether 4141 patients were included into the study. Female:male ratio was 23.71% : 76.29%. Sex: The female lethality was significantly lower than male in the first half a year: in 0–30 days 0.527 (0.4398–0.6947), in 31–90 days 0.6156 (0.4897–0.7738), in 91–180 days 0.6378 (0.479–0.8491). Increasing age resulted in a significantly higher chance of lethality: 0–30 days 7.36% 1.0736 (1.0583–1.0891), 31–90 days 6.56% 1.0656 (1.0507–1.0807), 91–180 days 3.66% 1.0366 (1.0186–1.055), 181–270 days 3.96% 1.0396 (1.0168–1.0628), 271–360 days 2.93% 1.0293 (1.0053–1.0538). According to surgical **METHODS:** arthroplasty 15.21%, screw fixation: 69.72%. Lethality after screw fixation was significantly higher in 0–30 days 1.9873 (1.366–2.9547) and 91–180 days 1.7168 (1.0931–2.6965). **CONCLUSIONS:** The chance of lethality depending on age-group highlighted the importance of early postoperative period. Higher age-groups, males and surgical methods might have an effect at different level on mortality.

OSTEOPOROSIS—Cost Studies

POS3

BUDGET IMPACT ANALYSIS OF BISPHOSPHONATES FOR FRACTURES IN POSTMENOPAUSAL WOMEN

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OBJECTIVE: To estimate from a health plan perspective the budget impact of treating postmenopausal women with bisphosphonates (alendronate, risedronate) to prevent hip and vertebral fractures. **METHODS:** The annual budget impact was calculated by estimating annual expenditures for bisphosphonate treatment less the cost of hip or vertebral fractures prevented per year from treatment. Data from pivotal clinical trials was used to estimate the number of clinically significant vertebral or hip fractures prevented with bisphosphonates. Cost of a fracture was based on medical claims data for women hospitalized for hip or vertebral fractures from January 1, 2003–December 31, 2004. Medication costs were based on average wholesale price for average dosing of bisphosphonates ×365 days, assuming 100% compliance with therapy. **RESULTS:** Annual medication costs for treatment were $9.9 million for risedronate and $10.3 million for alendronate per 10,000 women. Annual savings from averted fractures per 10,000 women were $3.1–$3.8 million for high risk women and $22,000–$33,000 for low risk women. The annual net budget impact was $6.5–$6.8 million for high risk women and $9.8 to $10.3 million for low risk women. Medication costs were about three times higher in high risk women and 375 times higher in low risk women than costs of hip or vertebral fractures prevented. Limitations: As medication adherence is less than 100% in practice, actual fracture prevention rates and medication costs are likely to be less than the trial-based outcomes used for this analysis. The analysis does not include quality of life, survival impacts related to fractures, or cost impacts of treatment-related adverse events. **CONCLUSIONS:** Using ideal assumptions for baseline fracture risk and medication adherence, treatment costs for bisphosphonates far exceed savings resulting from fractures prevented. Postmenopausal women with high fracture risks show the greatest benefits and offsets in treatment costs.

POS4

COMPARATIVE ANALYSIS OF HEALTH INSURANCE COST OF MEDIAL FEMORAL NECK FRACTURES WITH AND WITHOUT COMPLICATIONS ON A 2 YEARS FOLLOW UP

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OBJECTIVES: To analyze the health insurance cost of medial femoral neck fractures treated with arthroplasty, screw fixation and dynamic hip screw (DHS) methods on a 2 years follow up